

Trend Study 9-4-00

Study site name: Sawtooth-Flat Spring .

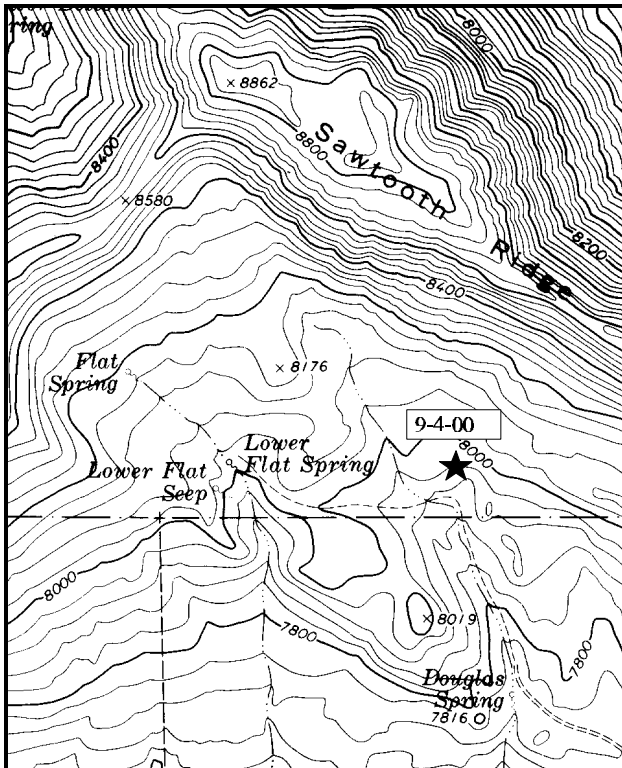
Range type: Sagebrush-Bitterbrush .

Compass bearing: frequency baseline 359°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (13 & 92ft), line 2 (40ft), line 3 (52ft), line 4 (71ft).

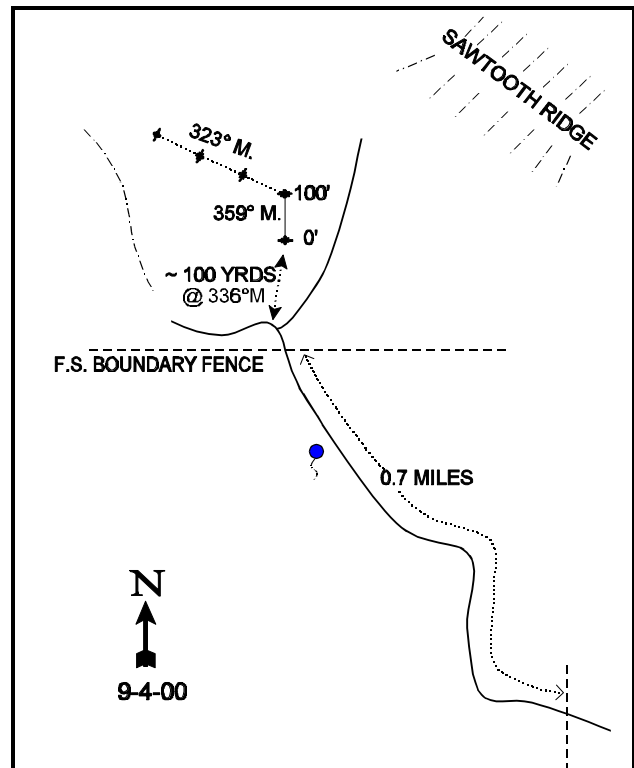
LOCATION DESCRIPTION

From Lapoint, drive east then turn north just before the bridge over Deep Creek. Proceed north for 6.85 miles to a fork. Bear right towards Deep Creek Ranch. Stay on this road for 9.8 miles to a dirt road on the left heading north up Pine Ridge. This road can also be reached by driving 3 miles west from Dry Fork. The gate may be locked. Turn left and drive 1.65 miles to a cattle guard. Continue 1.1 miles to a gate. Go through the gate and 0.7 miles to the fence on the FS boundary. Go through the gate and stop. From the yellow fencepost near the gate, walk 63 paces north bearing 336°M to the 0-foot baseline stake.



Map Name: Lake Mountain

Township 2S , Range 19E , Section 35



Diagrammatic Sketch

UTM 4494140.237 N, 605104.509 E

DISCUSSION

Trend Study No. 9-4 (11-5)

The Sawtooth-Flat Spring trend study is located on the south side of Sawtooth Ridge, east of Lows Flat Spring. Elevation is 7,960 feet with a southeast aspect and 16% slope. The study site is just outside the 1978-79 Flat Springs prescribed burn. The study samples a mountain big sagebrush/grass type with an important bitterbrush component. Quadrat frequency of deer pellet groups was moderately high in 1995 at 32%, while elk were only 6%. Rabbit pellet group quadrat frequency was quite high at 45%. A pellet group transect was read along the study baseline in 2000 estimates 75 deer days use/acre (185 ddu/ha), 25 elk days use/acre (63 edu/ha), and 16 cow days use/acre (40 cdu/ha). This study is in the Lake Mountain allotment which is grazed from June 21 to September 30 by 276 cows and calves on a 4-unit rest-rotation system.

Soils are sandy loam in texture and very rocky. Estimated effective rooting depth is just over 9 inches, while penetrometer readings show the majority of rock to be in the upper 8 inches of the profile. However, the presence of mountain big sagebrush suggests that the soil is deeper and effective soil depth measurements are limited by the rocky nature of the soil profile. The soil is slightly acidic (pH of 6.1) and relatively high in organic matter (4.3%). Vegetation and litter cover are high and well dispersed, preventing most soil erosion problems.

Key browse on the site consist of antelope bitterbrush and mountain big sagebrush. Sagebrush is more numerous and currently ('00) provides 78% of the browse cover. It has an estimated density of 2,740 plants/acre in 2000. Vigor has generally been good on sagebrush with 8% of the population displaying poor vigor in 2000. In 1995, 56% of the population was classified as being moderately browsed. In 2000, use was mostly light, with less than 5% of the population showing moderate or heavy use. Percent decadency has varied with each reading, with the highest level occurring in 1988 at 37%. Percent decadency is currently ('00) at 23%, a slight increase from 14% in 1995. Young recruitment is currently good at 9% and biotic potential (number of seedlings) is high at 22%. In 2000, seed production was noted as being high for the past few years. Annual growth averaged about 3 inches.

Antelope bitterbrush is the most preferred browse species on the site. Bitterbrush currently ('00) provides 16% of the browse cover and has an estimated density of 1,520 plants/acre. Density has varied slightly in each sampling year. However, the number of mature plants has remained relatively stable. Use has been classified as moderate to heavy during all readings. In 1982, thirty-eight percent of the mature plants displayed heavy hedging, increasing to 79% by 1988. Heavy use decreased in 1995 to 48% of the population, then slightly increasing to 62% in 2000. Vigor is mostly good with only 8% of the population showing poor vigor in 2000. Percent decadency steadily increased between 1982 and 1995 from 0% to 22%. Currently ('00), percent decadency is 11% and recruitment from young plants is moderately high at 14% (220 plants/acre). The bitterbrush population displays a prostrate growth form. Mature plants averaged only 14 inches in height with a 32 inch crown in 2000. Annual growth averages about 5 inches in 2000, with low seed production being noted.

Other browse are infrequent, but include: snowberry, mountain low rabbitbrush and a few scattered serviceberry.

Grasses and forbs are diverse, dense, and provide over 70% of the total vegetative cover in both 1995 and 2000. At the time of the 1988 reading, grass utilization was light, but cattle had just come onto the site. Due to recent seed head removal that year, species identification was difficult for some grasses. Currently ('00), needle-and-thread and the increaser, Kentucky bluegrass, are the most abundant species in both cover and nested frequency. Muttongrass was also abundant in 1995 and 2000. As a group, perennial grasses decreased in sum of nested frequency by 13% in 2000. This decrease is most likely due to drought. This condition should improve with a

return to normal precipitation. In 2000, grasses had not been utilized when the site was read in July. There are numerous valuable forb species found on the site, especially arrowleaf balsamroot and silver lupine which accounted for 74% of the forb cover in 1995 and 90% in 2000. Forbs were far less abundant in 2000 due to drought, with perennial sum of nested frequency decreasing by 35%. Annual forbs, which were moderately abundant in 1995, were almost non-existent with the drought in 2000. As with grasses, perennial forbs should increase with a return to normal precipitation in the future.

1982 APPARENT TREND ASSESSMENT

Range condition is good and overall trend appears stable. There is little compelling evidence for either extensive soil loss or vegetational change. The area appears capable of supporting more big game animals if livestock use remains at the current level.

1988 TREND ASSESSMENT

Due to the dense herbaceous understory, ground cover is excellent. Basal vegetative cover increased significantly. Percent bare ground declined slightly and there was very little detectable soil movement. Trend for soil is slightly up. The browse trend is up for mountain big sagebrush due to a large increase in density, adequate reproductive potential, a good number of young plants, good vigor, and light to moderate use. Trend for the more preferred antelope bitterbrush is also slightly up. Vigor is good and there are an adequate number of young plants. Density of mature plants increased slightly but heavy use increased to 79% of the plants sampled. Percent decadency rose from 0% to 18%, but the population appears to be in good condition in spite of the increases in use and decadency. Quadrat frequency of grasses and forbs increased since 1982, indicating a slightly upward trend for the herbaceous understory.

TREND ASSESSMENT

soil - slightly up (4)

browse - slightly up; up for sagebrush and slightly up for bitterbrush (4)

herbaceous understory - slightly up (4)

1995 TREND ASSESSMENT

Percent bare ground has declined by 48% since 1988, indicating a continued improvement in the soil trend. Litter also declined 14%, a common occurrence during this continuing drought. However, nested frequency of litter is very high indicating well dispersed protective cover. Herbaceous vegetation is also abundant accounting for 73% of the vegetative cover on the site, effectively limiting erosion. Trend for soil is slightly up. Trend for browse is stable. Mountain big sagebrush declined in density, but most of this is probably due to the increased sample size giving a better estimate of the actual population size. Reproductive potential is low, but stable, and recruitment from young plants is good at 10%. Percent decadency declined from 37% to 14%, and the young age class appears adequate to replace the decadent, dying individuals in the population. Bitterbrush continues to be heavily used yet appears to be stable. Currently, 48% of the shrubs are heavily hedged (>60% of twigs browsed). Percent decadence has increased to 22%, with 42% (160 plants/acre) of these decadent shrubs classified as dying. Average height measurements of mature plants have declined somewhat since 1982. Recruitment from young bitterbrush plants is good at 10%. Bitterbrush can withstand heavy use for long periods of time, but future trends should be watched closely with the continued drought. Trend for grasses and forbs is stable. Some of the fluctuations in the nested frequency numbers of the *Poa* grasses is the result of identification problems in 1988 and not necessarily actual changes in composition.

TREND ASSESSMENT

soil - slightly up (4)

browse - stable (3)

herbaceous understory - stable (3)

2000 TREND ASSESSMENT

Trend for soil is stable. Erosion remains minimal as vegetation and litter cover remain high and well disbursed over the site. Bare ground remains low and even with drought, only increased to 7%. Trend for browse is stable for both mountain big sagebrush and bitterbrush. Sagebrush shows increased density and lighter use compared to 1995 estimates. Currently, recruitment is adequate even with an increase in decadency from 14% to 23%. Bitterbrush remains at a stable density, has good recruitment, and vigor remains mostly good even with increased heavy use and drought in 2000. Percent decadency also decreased from 22% to 11%. Trend for the herbaceous understory is slightly down due to drought. Perennial grass sum of nested frequency decreased by 13%, with perennial forb sum of nested frequency decreasing by 35%. Normal precipitation patterns in the future should reverse this decline.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --

Herd unit 09 , Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	_a 59	_b 116	_a 70	14	32	45	30	1.42	.69
G	Carex spp.	_b 85	_a 22	_a 49	15	38	10	18	.24	2.16
G	Koeleria cristata	_b 23	_a -	_a 5	33	9	-	2	.00	.06
G	Poa fendleriana	_b 315	_a 131	_a 135	61	97	50	54	3.02	4.46
G	Poa pratensis	_a 81	_b 138	_b 165	4	30	44	49	7.83	9.85
G	Poa secunda	_b 29	_a 14	_a 3	9	11	4	1	.09	.00
G	Sitanion hystrix	_b 10	_{ab} 5	_a 1	-	6	2	1	.03	.03
G	Stipa comata	_a 45	_b 168	_c 193	29	24	60	66	5.97	12.59
G	Stipa lettermani	_b 83	_{ab} 140	_a 14	37	36	48	6	4.17	.49
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		730	734	635	202	283	263	227	22.81	30.35
Total for Grasses		730	734	635	202	283	263	227	22.81	30.35
F	Agoseris glauca	3	7	11	-	3	4	4	.02	.07
F	Allium spp.	_a 2	_{ab} 118	_b 28	28	1	52	12	.36	.19
F	Antennaria rosea	5	13	1	2	2	6	1	.30	.03
F	Arabis spp.	_b 51	_a 6	_a 7	1	23	3	3	.01	.04

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	<i>Artemisia ludoviciana</i>	-	-	4	-	-	-	1	-	.03
F	<i>Astragalus</i> spp.	_b 4	_b 6	_a -	-	3	2	-	.01	-
F	<i>Balsamorhiza sagittata</i>	152	160	148	50	70	68	63	14.00	15.28
F	<i>Castilleja linariaefolia</i>	-	4	2	-	-	2	2	.01	.03
F	<i>Calochortus nuttallii</i>	-	2	-	5	-	2	-	.01	-
F	<i>Chenopodium</i> spp. (a)	-	_b 15	_a -	-	-	7	-	.03	-
F	<i>Collomia linearis</i> (a)	-	_b 264	_a 24	-	-	93	12	2.08	.08
F	<i>Comandra pallida</i>	_a -	_{ab} 3	_b 7	-	-	2	4	.01	.09
F	<i>Collinsia parviflora</i> (a)	-	_b 173	_a 18	-	-	65	10	1.33	.05
F	<i>Crepis acuminata</i>	_a 2	_b 21	_a 1	3	1	9	1	.45	.00
F	<i>Cryptantha</i> spp.	-	2	-	-	-	1	-	.00	-
F	<i>Descurainia pinnata</i> (a)	-	_b 13	_a -	-	-	5	-	.07	-
F	<i>Eriogonum alatum</i>	4	-	-	-	2	-	-	-	-
F	<i>Erigeron eatonii</i>	_b 6	_a -	_b 4	5	3	-	3	-	.01
F	<i>Erigeron flagellaris</i>	8	1	5	6	3	1	2	.00	.06
F	<i>Eriogonum racemosum</i>	9	7	16	8	7	3	7	.09	.28
F	<i>Eriogonum umbellatum</i>	_a 1	_b 14	_b 13	3	1	7	8	.30	.14
F	<i>Heterotheca villosa</i>	-	-	2	-	-	-	1	-	.03
F	<i>Lomatium</i> spp.	18	11	5	3	7	6	3	.03	.06
F	<i>Lupinus argenteus</i>	_a 55	_b 91	_{ab} 77	36	30	44	41	3.35	2.72
F	<i>Lychnis drummondii</i>	_{ab} 6	_b 13	_a 1	15	3	8	1	.09	.00
F	<i>Orobanche fasciculata</i>	_a -	_b 8	_{ab} 3	-	-	4	2	.02	.03
F	<i>Penstemon humilis</i>	52	34	20	13	24	15	12	.17	.31
F	<i>Phlox longifolia</i>	_b 96	_a 43	_a 20	1	48	20	9	.20	.07
F	<i>Polygonum douglasii</i> (a)	-	_b 76	_a 11	8	-	35	4	.22	.02
F	<i>Potentilla gracilis</i>	-	3	3	-	-	2	1	.03	.00
F	<i>Senecio integerrimus</i>	-	2	2	-	-	1	2	.15	.03
F	<i>Sedum lanceolatum</i>	-	1	-	-	-	1	-	.00	-
F	<i>Senecio multilobatus</i>	1	2	1	3	1	1	1	.03	.00
F	<i>Tragopogon dubius</i>	_b 7	_b 7	_a -	-	3	3	-	.01	-
F	Unknown forb-perennial	_b 5	_a -	_a -	-	3	-	-	-	-
F	<i>Zigadenus elegans</i>	-	4	1	3	-	2	1	.01	.03
Total for Annual Forbs		0	541	53	8	0	205	26	3.76	0.15
Total for Perennial Forbs		487	583	382	185	238	269	185	19.71	19.58
Total for Forbs		487	1124	435	193	238	474	211	23.47	19.73

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --

Herd unit 09 , Study no: 4

T y p e	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier alnifolia	0	1	-	-
B	Artemisia tridentata vaseyana	72	78	12.34	15.40
B	Chrysothamnus viscidiflorus lanceolatus	5	4	.30	.36
B	Eriogonum heracleoides	3	7	.06	.30
B	Mahonia repens	2	2	.00	.03
B	Opuntia fragilis	3	2	.01	.00
B	Pediocactus simpsonii	1	0	.03	-
B	Purshia tridentata	52	54	3.87	3.12
B	Symphoricarpos oreophilus	11	12	.30	.52
Total for Browse		149	160	16.93	19.73

BASIC COVER --

Herd unit 09 , Study no: 4

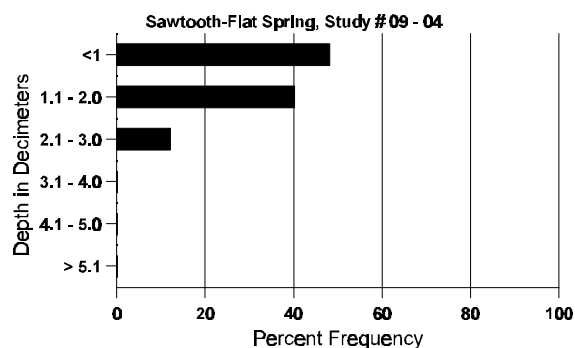
Cover Type	Nested Frequency		Average Cover %			
	'95	'00	'82	'88	'95	'00
Vegetation	375	368	7.25	12.50	61.72	64.45
Rock	111	65	1.75	1.50	2.08	1.64
Pavement	84	112	0	2.00	1.07	1.77
Litter	392	394	67.75	73.25	63.34	65.68
Cryptogams	-	18	.75	0	0	.42
Bare Ground	157	146	22.50	10.75	5.61	7.58

SOIL ANALYSIS DATA --

Herd Unit 09, Study # 4, Study Name: Sawtooth-Flat Spring

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
9.24	58.2 (10.71)	6.1	67.4	18.4	14.3	4.3	28.2	236.8	0.7

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 09 , Study no: 4

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'95	'00	'00	'00
Rabbit	5	4	209	N/A
Elk	5	8	331	25 (63)
Deer	31	30	974	75 (185)
Cattle	9	1	191	16 (39)

BROWSE CHARACTERISTICS --

Herd unit 09 , Study no: 4

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier alnifolia																		
M	'82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82			'88			'95			'00							
		00%			00%			00%			00%							
		00%			00%			00%			00%							
		00%			00%			00%			00%							
		00%			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)														'82	0	Dec:	-	
														'88	0		-	
														'95	0		-	
														'00	20		-	

A G E	Y G R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	1	-	1	-	-	-	-	-	2	-	-	-	133		2	
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
	00	28	-	-	-	-	-	2	-	-	30	-	-	-	600		30	
Y	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	88	5	4	-	-	-	-	-	-	-	9	-	-	-	600		9	
	95	10	-	-	-	-	-	-	-	-	10	-	-	-	200		10	
	00	10	-	-	-	-	-	3	-	-	13	-	-	-	260		13	
M	82	18	-	-	-	-	-	-	-	-	18	-	-	-	1200	26 30	18	
	88	21	7	-	-	-	-	-	-	-	28	-	-	-	1866	22 20	28	
	95	30	46	2	-	-	-	-	-	-	78	-	-	-	1560	27 43	78	
	00	85	1	1	5	-	-	-	-	-	91	-	1	-	1840	28 39	92	
D	82	3	-	-	-	-	-	-	-	-	1	2	-	-	200		3	
	88	9	9	3	1	-	-	-	-	-	21	-	1	-	1466		22	
	95	1	11	2	-	-	-	-	-	-	10	-	-	4	280		14	
	00	22	4	-	6	-	-	-	-	-	22	-	-	10	640		32	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	380		19	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	240		12	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82 00%			00%			00%			+63%							
		'88 34%			05%			02%			-48%							
		'95 56%			04%			04%			+26%							
		'00 04%			.72%			08%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	1466	Dec:	14%			
												'88	3932		37%			
												'95	2040		14%			
												'00	2740		23%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus lanceolatus																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	6	-	-	-	-	-	-	-	-	-	6	-	-	120	14	28	6
	00	6	-	-	-	-	-	-	-	-	-	6	-	-	120	15	24	6
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'82		00%				00%				00%								
'88		00%				00%				00%								
'95		00%				00%				00%				+ 0%				
'00		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	120		-			
												'00	120		-			
Eriogonum heracleoides																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	3	-	-	-	-	-	-	-	-	-	3	-	-	60			3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	3	-	-	-	-	-	-	-	-	-	3	-	-	60	10	13	3
	00	8	-	-	1	-	-	2	-	-	-	11	-	-	220	4	6	11
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'82		00%				00%				00%								
'88		00%				00%				00%								
'95		00%				00%				00%				+45%				
'00		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	120		-			
												'00	220		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Mahonia repens																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	4	-	-	-	-	-	-	-	-	-	4	-	-	80		4	
	00	1	-	-	-	-	-	2	-	-	-	3	-	-	60		3	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	2	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%			-25%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	80		-			
												'00	60		-			
Opuntia fragilis																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	1	-	-	-	-	-	-	-	-	-	1	-	-	66		1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	4	-	-	1	-	-	1	-	-	5	-	1	-	400		6	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	1	-	-	-	-	-	1	-	-	-	66	5	1	
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60	2	3	
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80	2	4	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	3	-	-	1	-	-	-	-	-	3	-	1	-	266		4	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			18%			-89%							
'95		00%			00%			00%			+ 0%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	0%			
												'88	732		36%			
												'95	80		0%			
												'00	80		0%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Pediocactus simpsonii																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	3	4	1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	20		-			
												'00	0		-			
Purshia tridentata																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	4	-	-	-	-	-	-	-	4	-	-	-	266			4
	95	6	1	1	1	-	-	-	-	-	9	-	-	-	180			9
	00	6	4	-	1	-	-	-	-	-	11	-	-	-	220			11
M	82	3	7	6	-	-	-	-	-	-	10	6	-	-	1066	19	28	16
	88	-	-	18	-	1	-	-	-	-	19	-	-	-	1266	17	28	19
	95	3	19	7	3	4	22	-	-	-	58	-	-	-	1160	13	32	58
	00	8	4	9	2	-	28	1	-	5	57	-	-	-	1140	14	32	57
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	1	4	-	-	-	-	-	-	5	-	-	-	333			5
	95	-	4	5	1	-	6	3	-	-	11	-	-	8	380			19
	00	1	-	1	-	2	4	-	-	-	2	-	-	6	160			8
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	80			4
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		44%			38%			00%			+43%							
'88		21%			79%			00%			- 8%							
'95		33%			48%			09%			-12%							
'00		13%			62%			08%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	1066	Dec:	0%			
												'88	1865		18%			
												'95	1720		22%			
												'00	1520		11%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	95	2	-	-	-	-	-	-	-	-	2	-	-	40			2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
Y	82	4	-	-	-	-	-	-	-	-	4	-	-	266			4	
	88	-	1	-	-	-	-	-	-	-	1	-	-	66			1	
	95	6	-	-	-	-	-	-	-	-	6	-	-	120			6	
	00	1	-	-	-	-	-	-	-	-	1	-	-	20			1	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	88	2	1	-	1	-	-	-	-	-	4	-	-	266	18	18	4	
	95	3	10	-	4	-	-	-	-	-	17	-	-	340	19	38	17	
	00	8	-	-	2	-	-	-	-	-	10	-	-	200	19	50	10	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	00	2	-	-	-	-	-	-	-	-	1	-	-	40			2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+20%							
'88		40%			00%			00%			+28%							
'95		43%			00%			00%			-43%							
'00		00%			00%			08%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	266	Dec:	0%			
												'88	332		0%			
												'95	460		0%			
												'00	260		15%			